UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 155
Seattle, WA 98101-3188

REGIONAL
ADMINISTRATOR'S
DIVISION

December 13, 2021

Tyler Moore, Section Chief
Bureau of Ocean Energy Management
Alaska Regional Office
3801 Centerpoint Drive, Suite 500
Anchorage, Alaska 99503-5823

Dear Tyler Moore:

The U.S. Environmental Protection Agency (EPA) has reviewed the Bureau of Ocean Energy Management (BOEM) Draft Environmental Impact Statement (DEIS) for the Cook Inlet Planning Area Oil and Gas Lease Sale 258 in Cook Inlet, Alaska (CEQ Number 20210160; EPA Project Number 21-0002-BOEM). Our review of the DEIS was conducted pursuant to our responsibilities under the National Environmental Policy Act, the Council on Environmental Quality regulations (40 CFR §§ 1500-1508), and Section 309 of the Clean Air Act.

The DEIS analyzes the potential impacts of conducting an oil and gas lease sale on the Alaska Outer Continental Shelf in the northern portion of the Cook Inlet Planning Area.

EPA's comments and recommendations are enclosed for BOEM's consideration. Many of our recommendations concern the Lease Sale 258 program as a potential new fossil fuel source. Our comments and recommendations focus on this new fossil fuel source and its potential greenhouse gas emissions in consideration of the U.S. 2030 Paris GHG reduction target and 2050 net-zero pathway. We recommend BOEM carefully consider the increasing conflict over time between continued GHG emissions and GHG emissions reduction goals and the risk of carbon lock-in from Lease Sale 258, particularly in Alaska, where the climate is changing rapidly.

Thank you for the opportunity to review the DEIS for this project. If you have questions about this review, please contact Lauren Boldrick of my staff at (907) 271-5097 or boldrick.lauren@epa.gov, or me, at (206) 553-1774 or at chu.rebecca@epa.gov.

Sincerely,

Rebecca Chu Digitally signed by Rebecca Chu
Date: 2021.12.13 13:55:14
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Rebecca Chu, Chief
Policy and Environmental Review Branch

Enclosure

U.S. EPA Detailed Comments on the DEIS
Cook Inlet Planning Area Oil and Gas Lease Sale 258
Cook Inlet, Alaska
December 2021

Impacts Analysis

In Section 4.2, the DEIS describes the scale it uses to categorize the extent of potential impacts to specific resources. The scale considers the context and intensity of the impact based on four parameters: detectability, duration (i.e., short-term or long-lasting), spatial extent (i.e., localized or widespread), and magnitude (i.e., less than severe or severe, where the term "severe" refers to impacts with a clear, long-lasting change in the resource's function in the ecosystem or cultural context). EPA recommends that the FEIS transparently account for how subject matter experts applied these criteria to categorize impacts to resources. Including a breakdown for each resource and stressor/impact and applying the parameters to demonstrate how the resources were assigned a category including negligible, minor, moderate, and major, would increase transparency for the public's understanding.

Purpose and Need

We recommend including discussion that clarifies the use of Cook Inlet production volumes to meet regional energy needs from the leases being offered under Lease Sale 258 (LS 258). This will further enable BOEM, and the public, to understand what areas should be prioritized for development. It would be helpful to discuss how existing Cook Inlet fields at current production levels are able to supply regional users' needs and to project future trends. The necessity of development described in the Exploration and Development (E&D) scenario to support local needs should be clarified, considering potential renewable energy projects that have permit applications in queue with the State of Alaska or the U.S. Government. This information will inform how future decision-making best aligns with the agency's statutory authorities and policies with respect to greenhouse gas emission mitigation. EPA recommends development of this valuable information for the public and decision-makers, consistent with CEQ's current position, as expressed in the preamble to their October 7, 2021 notice of proposed rulemaking.[1]

Alternatives

EPA recommends that the Alternatives section clarify the Area ID process and how specifically the Proposed Lease Sale Area achieves each accomplishment attained during the Targeted Leasing Process. Clarify how "important resources" were identified for developing alternatives to protect or mitigate impacts. EPA finds that beluga whales, otters, and commercial fishing seemed to be weighed more heavily than salmon, subsistence activities, and human health. A map clearly delineating the blocks according to resource potential, important habitat areas, critical subsistence use areas, and areas of focus, avoidance, reduction, and exclusion would be most helpful.

EPA finds it concerning that the overall impact ratings (i.e., negligible, minor, moderate, major) did not differ among action alternatives for any resource, except for commercial fishing (DEIS, pg. 13). EPA believes that the comments contained later in this Enclosure concerning environmental justice, subsistence, marine mammal impacts, and climate change may help in delineating the potential adverse and beneficial impacts of the proposed lease sale more clearly.

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[1] "[A]ir pollution, including greenhouse gas emissions, released by fossil fuel combustion is often a reasonably foreseeable indirect effect of proposed fossil fuel extraction that agencies should evaluate in the NEPA process, even if the pollution is remote in time or geographically remote from a Proposed Action. And even where an agency does not exercise regulatory authority over all aspects of a project, it may be appropriate to consider and compare the air pollution and greenhouse gas emission effects that the proposal and the reasonable alternatives would have on the environment, even if the agency does not have control over all of the emissions that the alternatives would produce. The consideration of such effects can provide essential information on the selection of a preferred alternative; for example, an agency decision maker might select the no action alternative, as opposed to a fossil fuel leasing alternative, on the basis that it best aligns with the agency's statutory authorities and policies with respect to greenhouse gas emission mitigation." 86 FR 55757, 55763 (2021). CEQ's view also supports EPA's recommendation to apply the SC-GHG estimates.

Salmon Alternative

Salmon are the most harvested and consumed subsistence resource for Cook Inlet tribes and other users. Salmon are of critical importance to the physical, social, cultural, and economic health and well-being of communities in southcentral Alaska.

EPA notes that in November 2021, the National Marine Fisheries via the North Pacific Fishery Management Council determined that commercial salmon fishing in the Cook Inlet Exclusive Economic Zone is prohibited. In March 2021, the State of Alaska requested that the Secretary of Commerce determine a commercial fishery failure due to a fishery resource disaster for all 2020 salmon fisheries in Upper Cook Inlet, under the Magnuson-Stevens Act.[2] The State's request cited unfavorable ocean conditions and the impacts of recent marine heatwaves that contributed to low salmon abundance and poor marine survival, which have resulted in fishery closures and restrictions.

Given the precarious status of the Cook Inlet salmon fisheries due to unfavorable oceanic conditions caused by climate change, EPA disagrees with the assessment that analysis of a salmon-focused alternative is unnecessary. Although the two leasing stipulations described (requiring lessees to review plans with subsistence communities to minimize conflict and the orientation program for workers) may help reduce conflicts with subsistence users, they are not protective of the salmon fisheries themselves.

Similarly, EPA finds that analyzing potential impacts of the nearshore alternative on beluga does not substitute for analyzing potential impacts of an alternative designed to protect migrating salmon and subsistence users nor does it support this determination.

> ***Recommendation***
> Given the recent NOAA Fisheries (NMFS) decision and State of Alaska request to declare a fishery failure in Cook Inlet, EPA recommends the FEIS analyze an alternative or a mitigation measure that is more directly protective of the salmon fisheries.

Northern Area Exclusion

The Northern Area Exclusion was an alternative considered but dismissed from detailed analysis. The objective of this alternative would be to "reduce the potential for interactions with the drift gillnet fishery that operates seasonally in this area (Petterson and Glazier, 2004) and also to reduce the possibility of interactions and impacts with beluga whales, which are more likely to be found in the northern part of the Proposed Lease Sale Area (NMFS, 2008a; Ferguson et al., 2015)" (DEIS, p. 10). BOEM's justification for dismissing the Northern Area Exclusion alternative is that the goals of this alternative are addressed by the Proposed Action as well as the various measures proposed under Alternatives 3A (Beluga Whale Critical Habitat Exclusion); 3B (Beluga Whale Critical Habitat Mitigation); and 3C (Beluga Whale Nearshore Feeding Areas Mitigation). Therefore, EPA recommends that these mitigation measures be implemented as part of the Proposed Action.

Renewables

In Section 3.2.2, we recommend including a discussion about alternative energy sources, focusing on potential regional large-scale renewable energy projects that have permit applications in queue with the State of Alaska or the U.S. Government.

Climate Change

National and International Goals

EPA recommend that the FEIS assess in detail the extent to which the program is inconsistent with U.S. and global policy to limit GHG emissions and whether resulting production activities would be economically viable in a future where such policies have reduced demand for fossil fuels. Regarding climate resiliency, we recommend

[2] https://www.federalregister.gov/documents/2021/11/03/2021-23610/fisheries-of-the-exclusive-economic-zone-off-alaska-cook-inlet-salmon-amendment-14

the EIS specifically identify how climate resiliency has been considered in the Proposed Action and Alternatives. The DEIS does not consider the leasing program in the context of national and international GHG emissions reduction goals.[3] Excess CO_2 and other greenhouse gases are resulting in loss of sea ice, increasing water temperatures, and ocean acidification. All of these phenomena are threatening habitat structure, aquatic food webs, and the species that depend on them. These species are critical to the biodiversity of the ecosystem and to the indigenous populations that rely upon them.

Additionally, the DEIS's use of the 2020 Annual Energy Outlook reference case to calibrate its analysis of market substitutions leaves out both existing and future policies, as well as market trends, that will affect the composition of substitute energy sources. The use of this reference case also has the effect of understating the GHG emissions that would result from the LS 258 program. For example, proposed light duty vehicle GHG standards and Corporate Average Fuel Economy standards will result in substantially lower demand for petroleum fuels in the United States than projected in the 2020 reference case. Implementation of these standards will also reduce the amount of production that the LS 258 program would be required to displace to meet demand in the No Action Alternative. Also, the cost of electric vehicles is projected by many sources, including the National Academies of Sciences, Engineering, and Medicine,[4] to be substantially lower than the prices in the 2020 reference case, which would increase the share of relatively lower carbon electricity. This lower carbon electricity can be considered as the substitute energy source for the LS 258 production.

> ***Recommendation***
> EPA recommends that the FEIS include a detailed discussion of the LS 258 program's GHG emissions in the context of national and international GHG emissions reduction goals, including the U.S. 2030 Paris GHG reduction target. The FEIS should include, for comparison, a scenario or scenarios that incorporate existing and potential policy changes that are consistent with the 2030 and 2050 reduction targets, for example by following the recently published Long Term Strategy of the United States.[5] This would provide decision makers and the public essential context regarding the program's long-term GHG emissions and essential emissions reduction policies. EPA further recommends that the FEIS incorporate practicable mitigation measures to reduce GHG emissions, e.g., a Lease Stipulation to apply to all leases issued under LS 258.

Additive and synergistic impacts

EPA appreciates DEIS recognition that "moderate to major cumulative impacts on populations of fish and wildlife are anticipated through effects of climate change (Sections 4.6, 4.7, 4.8, and 4.9). Relatedly, the DEIS stated "in the context of the potential long-term, widespread, and severe impacts on subsistence activities and harvest patterns related to climate change and cumulative oil spills, the impacts associated with the E&D Scenario would not represent a substantial incremental contribution to overall cumulative impacts (Section 4.11)."

EPA finds that the latter determination is misleading. It does not fully incorporate the State of Alaska's understanding of the recent Cook Inlet fishery resource disaster, the declining beluga population or contextual acknowledgement of the impacts to the exceedingly small population of remaining Cook Inlet beluga whales, and the notably high potential of an oil spill in Cook Inlet over the E&D Scenario time frame. Since major impacts due to climate change are occurring and these changes are anticipated to occur in the future, any additive contributions should be clearly noted as additive. Activities that perpetuate and/or increase the major impacts that are already occurring should be considered to cause major impacts.

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[3] https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Headline_Statements.pdf
[4] National Academies of Sciences, Engineering, and Medicine. 2021. Assessment of Technologies for Improving Light-Duty Vehicle Fuel Economy—2025-2035. Washington, DC: The National Academies Press. https://doi.org/10.17226/26092.
[5] US Government. "The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050." White House, US Government, Nov. 2021, www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf.

Given the Administration's commitment to strengthening Nation-to-Nation relationships,[6] EPA has provided recommendations throughout this Enclosure to support the inclusion of additional Indigenous Traditional Ecological Knowledge. This additional information will better support an evidence-based analysis and allow for more informed decision-making for LS 258. EPA does not agree with the analysis that determined there will not be disproportionate impacts to environmental justice communities because of the proposed E&D scenario as the information provided in the DEIS does not support this conclusion.

Recommendation

We recommend that the FEIS address additive and synergistic impacts of climate change (from additional greenhouse gas emissions) to the existing baseline conditions of the Cook Inlet salmon fisheries, the Cook Inlet beluga population, and the high potential of an oil spill in Cook Inlet.

EPA suggests climate adaptation and resilience are the priority consideration when preparing the FEIS. Considering potential projected climate change impacts to local economies, such as fishing and tourism, and to local endangered species, will help ensure that the decision in the Record of Decision will allow Cook Inlet to continue to function and provide benefits even as the climate changes. Given the climate change challenges faced by communities throughout the U.S., particularly communities with environmental justice concerns, EPA recommends the FEIS discussion of climate impacts reflect content from the Alaska chapter of the National Climate Assessment (e.g., "The threats are greatest for rural residents, especially those who face increased risk of storm damage and flooding, loss of vital food sources, disrupted traditional practices, or relocation.").

EPA recommends that BOEM consider the potential additive and synergistic impacts of climate change and the proposed program when selecting an Alternative or a combination of Alternatives in the Record of Decision. Doing so will avoid a greater number of negative impacts to human health and the environment.

Ocean Acidification

Regarding the analysis in Section 4.4.4, EPA references the IPCC Sixth Assessment Report,[7] "The increased evidence in recent studies supports an assessment that it is virtually certain that the uptake of anthropogenic CO_2 was the main driver of the observed acidification of the global ocean." The impacts from ocean acidification should not be narrowly assessed by changes in Cook Inlet surface waters; the production and use of fossil fuels has impacts on a global scale.

Implementation of the Proposed Action will contribute to this increase in CO_2, causing harm to marine food webs. The potentially catastrophic effects of increased CO_2 resulting from oil and gas development in general will not be reduced through more stringent permit limits or through listing Cook Inlet as an impaired waterbody. Localized improvements, if any, through wasteload allocations and adherence to water quality standards are dwarfed by the impacts of climate change. The impacts from ocean acidification on marine food webs is not specific to the nearshore. Zooplankton, including larval forms of marine life susceptible to decalcification, are present and drifting throughout the water column and are not tied to shorelines. The disruption of the marine food web through ocean acidification will impact numerous species and life stages in the food chain, including the marine mammals considered in this DEIS.

Recommendation

EPA recommends the conclusion regarding the cumulative impacts to water quality in Cook Inlet be reconsidered and rearticulated. In Section 4.4.4, the DEIS states: "that surface water corrosivity resulting from ocean acidification in the Chukchi and Beaufort seas will exceed the range of natural variability within the next 10–15 years (Mathis et al., 2015)" and that "Cook Inlet could also experience higher

[6] US Government. "Building A New Era of Nation-to-Nation Engagement". White House, US Government, Nov. 2021. https://www.whitehouse.gov/briefing-room/statements-releases/2021/11/15/fact-sheet-building-a-new-era-of-nation-to-nation-engagement/
[7] https://www.ipcc.ch/report/ar6/wg1/#TS

corrosivity levels." The conclusion that "the cumulative impact to water quality resulting from climate change…would be minor" is erroneous. The harmful impact of ocean and coastal acidification on marine life, especially shellfish, will affect the foundation of the marine food web, including the livelihood of vulnerable indigenous communities in Cook Inlet, many other coastal Alaska communities, and on the West Coast, that depend on these coastal resources.

Shipping Impacts

Regarding Section 3.2.2.7, EPA recommends the FEIS clarify that climate change does not cause increased shipping. Rather, decreases in sea ice coverage due to climate change allow longer periods of time that shipping could occur each year, and may result in decisions which increase shipping.

Lifecycle Analysis

As EPA understands, BOEM used the Offshore Environmental Cost Model (OECM) to estimate the E&D Scenario's direct upstream emissions of exploration, development, and production activities, as well as indirect upstream emissions from substitute energy sources in the No Action scenario. MarketSim was used to model substitute energy sources and gross energy exports differences between the No Action and Proposed Action high case scenario. BOEM's Greenhouse Gas Lifecycle Model (LCM) calculates the indirect mid- and downstream emissions associated with the processing and transportation of the E&D Scenario's petroleum resources. Finally, MarketSim and the LCM (via data from the U.S. Energy Information Administration) provided information on the indirect downstream emissions by illustrating end-use domestic consumption of oil, natural gas, coal, and electricity.

BOEM acknowledged that its LCM (and resulting models) were developed for analysis at a national level for the National OCS Oil and Gas Leasing Program and, as such, may be limited in scaling the models to the LS 258 (regional) analysis. EPA finds that the challenges associated with using this model in this context may be particularly noteworthy.

EPA recognizes that BOEM is conducting the foreign market consumption analysis for the first time in the agency's history and is seeking comments to refine its methodology and practices on assessing foreign market consumption.

EPA has provided several recommendations in this section and the Geological Information section to help clarify between the Cook Inlet's petroleum resource potential, and potential emissions associated with production, transport and combustion of these resources that could be developed because of LS 258.

Recommendations

EPA recommends avoid expressing program-level emissions as a percentage of national or state emissions. Conveying the information in this way diminishes the significance of GHG emissions that may occur because of LS 258. Instead, EPA advises substituting a qualitative discussion disclosing the increasing conflict between GHG emissions and GHG reduction polices and addressing mechanisms for mitigating that conflict.

Regarding foreign market consumption, the assumption of using one emission factor for foreign oil consumption could potentially lead to a significant degree of error. EPA recommends running several sensitivity analyses using assumed distributions of end uses to estimate the uncertainty introduced into the calculations by this assumption.

EPA recommends including additional detail on the regional framework and region-specific assumptions used in these analyses in the EIS. Specifically, clarify the relationship between natural gas produced in the relevant OCS leases, and its consumption in Alaska or elsewhere in the US. Provide any available details about the proposed action's potential to reduce coal consumption.

EPA recommends that the EIS described if natural gas produced under these leases would replace imported LNG currently used by an Alaskan petroleum refinery. Where that occurs, describe, what impact this substitution may have on Alaskan refined petroleum product prices and in-State consumption.

To help illuminate the likely alternative sources of petroleum, EPA recommends the EIS provide additional detail on the density and sulfur content of the petroleum anticipated to be produced from the Cook Inlet.

EPA advises the EIS include information about the assumed competitiveness of the international petroleum market (e.g., expected response of the OPEC's members, and the states generally aligned with OPEC, to changes in US petroleum production or exports).

EPA technical experts are available to provide technical support upon request.

Production Values

The DEIS describes in the E&D Scenario production of 192.3 million barrels of oil and 301.9 billion cubic feet of gas could occur by developing leases in Cook Inlet (DEIS p. 15); which is about 246 million of barrels of oil equivalent. Using EPA's Greenhouse Gas Calculator, that is about 106 million metric tons of CO2e.

The DEIS estimated about 9.3 million metric tons of CO2e will be emitted due to the Proposed Action from upstream activities and 79.0 million metric tons of CO2e will be emitted from mid- and downstream activities associated with the Proposed Action (DEIS p. 47).

Recommendation

EPA recommends the EIS clarify the difference between the emissions estimate based on the estimated recoverable reserves compared to the indirect upstream emissions data (associated with the extraction of petroleum resources) provided by MarketSim.

EPA advises the EIS discuss the potential increase in emissions that could occur via successful long-term development over time (more discussion on this topic is available later in the Enclosure).

Social Cost of Greenhouse Gases

The DEIS describes the calculated social costs of GHG emissions to estimate the monetized costs associated with the No Action Alternative and the Proposed Action. EPA recognizes that the other action alternatives are not considered since at this time, they are not expected to change the E&D scenario that is described in the analysis.

Midstream

EPA recommends clarifying how midstream (e.g., activities to transport and store crude oil and natural gas before they are refined and processed into fuels) assessments factor into the DEIS GHG analysis. EPA recognizes that oil and gas from the Cook Inlet Planning Area could help meet regional and national energy needs and lessen the need for imports. The DEIS describes the existing Trading Bay Production Facility and the Kenai Refinery. EPA recommends information about these facilities be included in the analysis as the use of these facilities is a direct potential connected action.

Gas Production

In Section 4.1, the DEIS indicates, "So as not to underestimate the potential impacts of the Proposed Action, BOEM is analyzing the high case." However, Figure 4-2 implies that gas production assumed in the LS 258 DEIS is the E&D Scenario's low case. Please clarify which case is used in the analysis and adjust associated disclosures accordingly.

Geological Information
EPA reiterates its recommendation to clarify the use of Cook Inlet production volumes for regional energy needs from the leases being offered under LS 258. The DEIS describes current and historic exploration and production activities well, and the rationale on the scenario size is clear.

> ***Recommendation***
> EPA recommends that the EIS include heat maps to illustrate the resource potential within the planning area. Utilizing heat maps provides a more robust context to assist in public understanding of the Alternatives in illustrating why lease blocks near or within critical habitats were not removed during the Targeted Leasing process.
>
> EPA recommends the EIS provide additional information regarding the petroleum resources in Cook Inlet, and how this understanding may change through time. This additional information will also allow the public and decision makers to better understand the cumulative GHG impacts. If possible, the expected characteristics of the crude oil (including sulfur content and density) should be reported.

Technological Advances
EPA recognizes that technological improvements continue to reshape oil and gas production, like green well completions, vapor recovery units, engine upgrades for non-road vehicles, and closed loop drilling fluid systems. Some innovative approaches tend to generate greater environmental releases than those associated with conventional gas producing techniques.

Nationally, the successful extraction of natural gas from unconventional resources required the invention of specialized drilling and completion techniques, such as extended reach drilling and fracking. Both techniques tend to cause additional disturbances, such as large volumes of contaminated wastewater. One of the main pollutants released in the fracking process is methane. Research indicates the U.S. oil and gas industry emits 13 million metric tons of methane annually, for a leak rate of 2.3% of all production.[8] Its global warming potential is 84 times that of carbon dioxide on a 20-year horizon, and 28 times on a 100-year horizon.[9]

> **Recommendation**
> We advise the EIS include a regional assessment of how technological advances have changed the amount of petroleum hydrocarbon extracted from Cook Inlet over time by comparing the initially estimated recoverable reserves with current production values.
>
> EPA recommends that the EIS consider the regionally specific emissions that may occur, considering the types of drilling and completion techniques that are most often used in Cook Inlet.

Future Emissions Mitigation
To minimize or avoid environmental harms caused by GHG emissions that exceed previous estimates, we recommend a mitigation measure that requires a NEPA adequacy review be completed if the barrels per day gross annual average exceeds the original barrels per day production target (disclosed in the development's most recent NEPA document) over a two-year period or when the cumulative recovered reserves exceeds the original estimated recoverable reserves (disclosed in the development's most recent NEPA document) by 10%. EPA's analysis indicates that with technological advances and new data provided by infield drilling following a development and production EIS, more petroleum hydrocarbons are often extracted from the reservoir than originally estimated. This results in more GHG emissions produced than estimated or disclosed to the public. For example, if a development was estimated to produce 20,000 barrels of oil per day (BOPD) in its most recent NEPA analysis and is currently producing approximately 37,000 BOPD, a NEPA adequacy review should be

[8] Alvarez, Ramón A., et al. Assessment of methane emissions from the U.S. oil and gas supply chain. 10.1126/science.aar7204. Science. 2018.
[9] https://www.epa.gov/ghgemissions/understanding-global-warming-potentials

conducted to capture this information. This information allows for more accurate cumulative analyses of oil and gas projects within the regional petroleum basin(s).

One-third of the warming from greenhouse gases occurring today is due to human-caused emissions of methane, a potent greenhouse gas that traps about 30 times as much heat as carbon dioxide over 100 years. Sharp cuts in methane emissions over the next decade will have a near-term beneficial impact on the climate. In the United States, the oil and natural gas industry is the largest industrial source of methane emissions, emitting more methane than the total emissions of all greenhouse gases from 164 countries combined. Oil and natural gas operations also emit smog-forming volatile organic compounds (VOCs) and toxic air pollutants, such as benzene, that harm public health.[10] We provide two recommendations regarding potential future production and associated emissions.

Recommendations

For future development project EAs and/or EISs that result from the LS 258 program, EPA recommends that BOEM ensure that these documents include geological and geophysical information that supports the estimates of the recoverable reserves. Development forecasts and production estimates support the scale, accuracy, and veracity of the potential oil spills, GHG emissions, and SC-GHG estimates and analysis. This information would support any future NEPA adequacy reviews for development projects that may result from the LS 258 program.

We recommend that EIS include a mitigation measure or lease stipulation that restricts gas flaring unless necessary for safety. Both the Global Methane Pledge, which requires a 30 percent cut in methane emissions by 2030, and the EPA proposed rule (40 CFR part 60) address flaring to reduce methane emissions.[11]

Future Projects

EPA advises that the following information be included in project (exploration and development) specific Environmental Assessments or EISs:

- Description and figures showing the geophysical data used to evaluate the shallow geological and archaeological hazards.
- Discussion and figures showing the location, stratigraphy, and structure of the hydrocarbon resource(s).
- Description of the predicted rate profile for oil, water, and gas with the corresponding rate of injection for water and gas.
- Description of the reservoir rock properties, reservoir fluid properties, and an estimate of the recoverable resources supported by information within the document.
- Description of the subsurface depletion plan including well count, well placement, well profiles, well depth, and bottom hole locations.
- Analysis of surface and subsurface conditions that may present hazards to rig set down, construction, drilling operations, production and processing operations, pipeline construction, and/or pipeline operation.

Marine Mammals

Stellar sea lion inconsistency

The Proposed Action has the potential to impact Steller sea lions (endangered), Northern sea otters (southwestern stock threatened), and beluga whales (endangered). The DEIS states that “all critical habitat for Steller sea lions and most critical habitat for Northern sea otters and beluga whales occurs outside of the Proposed Lease Sale Area, so there is little potential to affect critical habitat areas" (DEIS p. 90). We appreciate that the DEIS considers alternatives that are more protective for beluga whales (Alternatives 3A, 3B, and 3C) and northern sea otters (Alternatives 4A and 4B). The DEIS concludes that the overall impacts of alternatives are the same as the Proposed Action, even though the alternatives are more protective.

10 https://www.epa.gov/newsreleases/us-sharply-cut-methane-pollution-threatens-climate-and-public-health

11 https://www.epa.gov/system/files/documents/2021-11/san-8510-ong-climate-review-proposal-frn-2021-11_1.pdf

Recommendation

We recommend that the EIS clarify how alternatives proposing distinct levels of protection will result in the same overall impacts to listed species. We recommend that BOEM include more protections to avoid beluga and sea otter habitat. We recommend the FEIS explain why the protections in place for endangered stellar sea lion habitat are not applied to beluga and sea otters.

Population trends

EPA advises that since 2015, the U.S. Government has included the Cook Inlet beluga whales in an initiative that includes animals considered most at risk for extinction and prioritizes their recovery efforts.[12] Because of this elevated concern, data about species population trends in Cook Inlet would be helpful to ensure the Proposed Action is not harming populations more than anticipated. In the cumulative impacts section, the DEIS states that marine mammal populations are stable, but Section 4.8.1.1 states that beluga whale populations are continuing to decrease; we find that current data shows that Section 4.8.1.1 is correct.[13]

EPA also finds that the cumulative impacts section does not appropriately reflect the small size of the population; impacts to an individual of reproductive age could have population level effects.

EPA notes similar conclusions in the northern sea otter and Steller sea lion analyses.

Recommendation

EPA recommends the EIS revise the cumulative impacts section based on Section 4.8.1.1 to reflect that the Cook Inlet beluga whale population is declining at a rate of 2.3% per year, despite recovery efforts.[14]

We recommend that the FEIS include a discussion of the Stellar sea lion and northern sea otter population trends and consider these population trends in the Alternatives discussion.

Quantifying impacts

As mentioned above, the DEIS states that "most critical habitat for Northern sea otters and beluga whales occurs outside of the Proposed Lease Sale Area" (DEIS p. 90). The DEIS also states that the Proposed Action southeastern corner is "close" to one critical habitat area for the western distinct population segment of stellar sea lion. Regarding the northern sea otters, the DEIS states that critical habitat within the Proposed Action area is a "small percentage" of total critical habitat.

Recommendation

EPA recommends that the FEIS quantify impacts to help understand what is meant by "most," "close," and "small percentage."

Beluga affinity

The Proposed Action area overlaps with beluga whale critical habitat area. The DEIS mentions that "[d]ue to the affinity most beluga whales have to the upper reaches of Cook Inlet during most of the year, they should be unaffected by seismic operations in the Proposed Lease Sale Area during summer…" (DEIS p. 87). However, the DEIS also states that belugas would likely avoid the work areas. We recommend that the FEIS clarify if the beluga's known affinity for the area exposes them to more harm or less harm. If the beluga whales have an affinity for the project area, then the Proposed Action presents greater potential harm.

[12] https://www.fisheries.noaa.gov/species/beluga-whale#spotlight

[13] https://media.fisheries.noaa.gov/2021-08/BELUGA%20WHALE%20%28Delphinapterus%20leucas%29%20-%20Cook%20Inlet%20Stock.pdf

[14] https://www.fisheries.noaa.gov/resource/educational-materials/cook-inlet-belugas-population-decline

Marine Acoustics

EPA notes that the DEIS finds that impacts from air-gun operations would consist of exposure to non-injurious intensities of low frequency noise that would result in temporary behavioral responses from marine mammals. This is due to the short-term avoidance marine mammals show; required mitigations such as posting Protected Species Observers onboard vessels and shutdowns of operating air-gun arrays if marine mammals are detected in proximity (Section 3.3.2); small behavioral responses; and lack of injuries among marine mammals associated with seismic surveys in Alaska.

According to NOAA, ocean noise, specifically noise from sources such as oil and gas exploration and development, pile driving, and high vessel traffic, is identified as one of six threats to Cook Inlet beluga whales.[15] The measures presented in Section 3.3.2 are not required measures that can be relied upon to determine the level of impact associated with stressors generated by activities described in the E&D Scenario. These are measures that may be required in the future by the Services following consultations required by the Endangered Species Act and/or the Marine Mammal Protection Act. Relying on measures that may or not be required to characterize the impacts from the permitting of this lease is inconsistent with NEPA.

Recommendation

EPA finds that elevated noise levels in or near critical habitat areas are more likely to adversely impact the ESA-listed species that the critical habitat area designations are intended to protect. EPA finds that implementation of Alternative 3B and 3C would prevent adverse effects on beluga whale from elevated underwater sound.

EPA recommends amending Section 4.8.2.1 with direct language about when acoustic noise transforms from what could be reasonably considered "sound" (compressions and dilatations of the water column in a state of equilibrium) into "shockwaves" (when the amplitude becomes so large that discontinuities in acoustic quantities such as pressure and particle velocity occur). This will clarify when noise becomes a percussive force experienced by marine biological resources. This would help distinguish the impacts by clarifying between the physical impacts of the sound and impacts caused by the perception of sound by marine animals.

EPA recommends the FEIS provide a quantitative comparison between underwater sound levels and fields generated by the various activities described in the E&D Scenario compared with the hearing ranges and acoustic threshold for marine mammals. Predicating the analysis on the determination that the impacted marine mammals avoid ensonified areas is not a valid justification given the use of mitigation measures that are often included in decision-making documents for exploration and development projects due to this known issue.

Air Quality

Class I Increment

The definition of an OCS source in CAA Section 328(a)(4) attributes the emissions from support vessels en route to or from an OCS source, within 25 miles of the source, as emissions from the source. In reference to Section 4.3.2, these emissions could be a significant portion of the source emissions and would typically be directly modeled in an air quality analysis used for air permitting. EPA recommends the FEIS consider these emissions in the modeling, especially given NO2 impacts are shown to be just below the Class I increment at Tuxedni Wilderness Class I area, in Table 4-7.

Results presented in Table 4-7 and 4-8 appear to not exceed the PSD Class I increments at Tuxedni, as stated. The highest relative impact is 2.45 ug/m3 annual NO2 at Tuxedni, just below the Class I increment of 2.5 ug/m3. These impacts are high enough to warrant concern that in considering cumulative increment consumption, the project could contribute significantly to a violation of the increment. Given these results, it is likely that an

[15] NOAA 2017 https://repository.library.noaa.gov/view/noaa/17047

extensive cumulative modeling analysis would be required during New Source Review (NSR) of any exploration projects in the lease blocks in the vicinity of Tuxedni. A NSR permit could not be issued to a project that significantly contributes to a violation of the increment.

Recommendation

EPA recommends additional discussion be added to the EIS to disclose that modeling results indicate sources located in lease blocks nearer to Tuxedni could contribute to violations of Class I increment and could therefore possibly not be able to obtain an air permit without mitigation.

New Source Permitting

The Clean Air Act requires a PSD (or "Major") New Source Review construction air permit for any project located in an area of attainment, with allowable annual emissions that meet or exceed major source thresholds. Given the magnitude of emissions expected from a typical exploration or production project, it is likely a typical project would require a PSD permit to construct. The EPA would be the permitting authority in the federal waters of Cook Inlet and would be responsible for ensuring the protection of the Class I PSD increment at Tuxedni through the permitting process.

As part of the permit application process, an air quality analysis would be conducted to determine if the source would cause or contribution to a violation of a National Ambient Air Quality Standard (NAAQS) or a Class I or Class II increment violation. A PSD permit could not be issued to a potential source that would cause or contribute to a violation of an air quality standard. Adoption of significant mitigation, such as air quality control equipment and/or operations limits might be necessary to ensure air quality standards were protected.

As part of a PSD application, the applicant would be required to provide an assessment of impacts to Air Quality Related Values (AQRVs) at Tuxedni Class I area. The Federal Land Managers (FLMs) for Tuxedni (Fish & Wildlife) are responsible for the protection of the AQRVs. The permitting authority is required to notify and consult with the FLMs of the impacted Class I areas during the PSD permitting process to ensure AQRVs are protected. Protection of AQRVs at Tuxedni Class I area would be a critical element considered in the permitting process, given the proximity and magnitude of any project in the lease area.

Recommendation

EPA recommends that the FEIS include an expanded discussion in Section 4.3.2 to explain AQRV protections and the process FLMs use to analyze project impacts during NSR. Current or additional modeling analysis should be leveraged to estimate project impacts to AQRVs at Tuxedni.

Short-Term Emissions

Section 4.3.2 of the DEIS does not include an analysis of short-term (1-hour) average SO_2 and NO_2, which are often the limiting impacts from any given project due to the stringency of the short-term NAAQS. Also, PM2.5 and ozone impacts are not assessed at all in this section. Protection of Class I PM2.5 increment at Tuxedni and PM2.5 NAAQS are also of particular concern. The estimated project emissions include significant amounts of VOCs and NO_2, which are PM2.5 and ozone precursors.

Recommendation

EPA recommends the modeling results section in the FEIS be expanded to compare maximum modeled offshore impacts (project design concentrations) to all the applicable NAAQS. Our recommendation includes ensuring the expanded comparison include all short-term and long-term averaging period NAAQS with short-term NO_2 and SO_2 impacts and PM2.5 and ozone impact. This would disclose that future projects are unlikely to violate air quality standards.

Ozone Concentrations

We recommend the FEIS clarify that higher water vapor is expected to decrease tropospheric ozone background concentrations. Jacob and Winner (2009) article may be a useful citation as the source of this statement.

Environmental Justice

General Comments

Assessing EPA's Environmental Justice Screening and Mapping Tool (EJSCREEN) information is a useful first step in understanding or highlighting locations that may be candidates for further review or outreach.[16] EPA considers a project to be in an area of potential environmental justice (EJ) concern when an EJSCREEN analysis for the impacted area shows one or more of the eleven EJ Indexes at or above the 80th percentile in the nation and/or state. At a minimum, EPA recommends an EJSCREEN analysis consider EJSCREEN information for the block group(s) which contains the proposed action(s) and a one-mile radius around those areas.

It is important to consider all impacted areas by the proposed action(s). Areas of impact can be a single block group or span across several block groups and communities. When assessing large geographic areas, consider the individual block groups within the project area in addition to an area wide assessment. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators.[17] As the screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location and/or proposed project, consider additional information in an EJ analysis to supplement EJSCREEN outputs.[18]

Further review or outreach may be necessary for the proposed action(s). The proposed action(s) are in an area of potential EJ concern. An EJSCREEN analysis for these sites shows all eleven EJ Indexes at or above the 80th percentile in the nation and state. To address these concerns, EPA recommends:

- Applying the "Environmental Justice Interagency Working Group Promising Practices for EJ Methodologies in NEPA Reviews" report, or the Promising Practices Report, to this project.[19] The Promising Practices Report is a compilation of methodologies gleaned from current agency practices concerning the interface of EJ considerations through NEPA processes.
- Characterizing project site(s) with specific information or data related to EJ concerns.[20]
- Describing potential EJ concerns for all EJ Indexes at or above the 80th percentile in the state and/or nation.
- Describing block groups which contains the proposed action and at a minimum, a one-mile radius around those areas.
- Describing individual block groups within the project area in addition to an area wide assessment.
- Supplementing data with county level reports and local knowledge. This may include:
    - The Health Impact Assessment (HIA) Resource and Tool Compilation[21]
    - Limited English Proficiency Mapping[22]
    - Air Quality Data[23]

[16] https://ejscreen.epa.gov/mapper/
[17] https://www.epa.gov/ejscreen/technical-documentation-ejscreen
[18] https://www.epa.gov/healthresearch/health-impact-assessment-hia-resource-and-tool-compilation; https://www.lep.gov/maps/lma2015/Final; https://www.airnow.gov/; https://www.atsdr.cdc.gov/placeandhealth/svi/index.html; https://nihhis.cpo.noaa.gov/vulnerability-mapping; https://www.cpc.ncep.noaa.gov/products/predictions/threats/extremesTool.php; https://www.fema.gov/emergency-managers/practitioners/resilience-analysis-and-planning-tool; https://epa.maps.arcgis.com/home/webmap/viewer.html?webmap=137d4e512249480c980e00807562da10;
[19] https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf
[20] For more information about potential EJ concerns, refer to the July 21, 2021 Memorandum for the Heads of Departments and Agencies Interim Implementation Guidance for the Justice40 Initiative. https://www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf
[21] https://www.epa.gov/healthresearch/health-impact-assessment-hia-resource-and-tool-compilation
[22] https://www.lep.gov/maps/lma2015/Final
[23] https://www.airnow.gov/

- Center for Disease Control and Agency for Toxic Substances and Disease Registry's Social Vulnerability Index[24]
- Extreme Heat Vulnerability Mapping Tool[25]
- Global Probabilistic Extremes Forecast Tool[26]
- Resilience Analysis and Planning Tool[27]
- Smart Location Mapping[28]
- Ground truthing through meaningful engagement with residents, community leaders, and organizations.

The NEPA Committee of the Federal Interagency Working Group on EJ has noted that, in some cases, it may be appropriate to use a threshold for identifying low-income populations that exceeds the poverty level.[29] For this project, there may potentially be low-income populations that may not be accurately recognized by U.S. Census Bureau data. This can happen if the analysis does not account for areas with high housing costs that occur in Alaska, or other critical family expenses and resources. Of particular importance are those that are indelible to the functioning of a tribal community.

Existing screening tools do not currently capture certain demographic characteristics of rural Alaskan communities, such as their remote nature and the high-cost burden of transportation, that may present EJ concerns. As such, EPA recommends consideration of the definition of "disadvantaged community" as referenced in EO 14008 and further described in the Interim Implementation Guidance for the Justice40 initiative,[30] which direct agencies to consider a range of specific demographic and environmental variables when assessing a community.

Recommendation

We recommend that FEIS refer to the EPA document titled, "Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts" which presents research on the disproportionate risks to low-income and minority populations posed by climate change.[31] According to the Fourth National Climate Assessment (NCA4), the impacts of climate change will not be equally distributed across the U.S. population. Those who are already vulnerable due to a range of social, economic, historical, and political factors have a lower capacity to prepare for, cope with, and recover from climate change impacts. Understanding the comparative risks to vulnerable populations is critical for developing effective and equitable strategies for responding to climate change.

Impacts Analysis

With regard to the comments included from local tribes and tribal communities in the DEIS on this proposed program, EPA is concerned that the DEIS does not fully integrate the factors considered, such as "the fundamental importance of these (subsistence) activities to cultural, individual and community health, and well-

[24] https://www.atsdr.cdc.gov/placeandhealth/svi/index.html
[25] https://nihhis.cpo.noaa.gov/vulnerability-mapping
[26] https://www.cpc.ncep.noaa.gov/products/predictions/threats/extremesTool.php
[27] https://www.fema.gov/emergency-managers/practitioners/resilience-analysis-and-planning-tool
[28] https://epa.maps.arcgis.com/home/webmap/viewer.html?webmap=137d4e512249480c980e00807562da10
[29] Federal Interagency Working Group on Environmental Justice & NEPA Committee. Promising Practices for EJ Methodologies in NEPA Reviews. March 2016. Available at: https://www.epa.gov/sites/production/files/2016-08/documents/nepa_promising_practices_document_2016.pdf.
[30] Office of Management and Budget. "Interim Implementation Guidance for the Justice40 Initiative." White House, US Government, 20 July 2021, www.whitehouse.gov/wp-content/uploads/2021/07/M-21-28.pdf.
[31] EPA. 2021. Climate Change and Social Vulnerability in the United States: A Focus on Six Impacts. U.S. Environmental Protection Agency, EPA 430-R-21-003. www.epa.gov/cira/social-vulnerability-report

being."[32] EPA supports DOI's recent directive to improve leasing processes so that the practices are adequate, fair, or equitable, thus preventing avoidable environmental justice impacts.[33]

Recommendation

Regarding our previous comments on the impacts scale and additive and synergistic impacts, EPA recommends the FEIS clarify how criteria were applied to determine a "minor" impact to Communities and Subsistence resources. We recommend that these criteria and determinations be reviewed and/or discussed with potentially impacted subsistence users. This includes engagement of the nearby federally recognized tribes (Port Graham, Nanwalek, Seldovia, and Ninilchik) during the tribal consultation process. EPA recommends the FEIS disclose the outcome of those discussions, including if the input from the impacted communities aligns with the final analysis.

EPA recommends the FEIS incorporate "changes in the quantity, quality, and/or perceived quality"[34] of subsistence foods throughout the impacts analysis as a key recognition of the fundamental importance of these activities to regional subsistence users and tribal communities.

EPA recognizes the robust mitigation measures described in the DEIS that are proposed for protecting birds and reducing conflicts with commercial fishing. We recommend the FEIS include equivalent mitigation measures for protecting subsistence communities and subsistence resources.

Health Impact Assessment

The State of Alaska recognizes that many communities located in rural areas throughout the state are highly dependent on subsistence hunting and gathering. Resource development has the potential to bring substantive changes to rural and indigenous communities that are near a proposed development. These changes can include revitalization of communities through economic growth and community projects, and they can include environmental exposure to toxins, interference with subsistence activities, and disruption to communities.

Historically, because the interaction between natural resource development and human health is dynamic and complex, the State of Alaska has recommended the use of a Health Impact Assessment (HIA) to identify both the health benefits and the potential health risks in any proposed resource development program. A HIA provides some assurance that human health has been carefully considered in developing project proposals. For this project, a HIA would be able to overlay Federal and State practices, guidelines, and policies to create a nuanced understanding of the potential impacts to disadvantaged communities that use Cook Inlet. EPA is particularly concerned about the potential impacts of the proposed project on subsistence activities and harvest patterns associated with activities considered in the E&D Scenario. EPA's concern is that these activities would result in changes in the availability of subsistence resources to harvesters and space-use conflicts.

Recommendation

The level of potential impacts to users of the project area (e.g., subsistence users, tribal use) and some of these users may be associated with disadvantaged communities. Climate change will further exacerbate impacts to these communities. Therefore, EPA recommends the EIS include a HIA to analyze the impacts of the proposed action on these communities more equitably. This tool would allow for a structured planning and decision-making process that analyzes the potential positive and negative impacts of the LS 258 program on the public's health.

The HIA process has several characteristics, such as its multidisciplinary evaluations that incorporate flexible and adaptable factors. EPA believes the HIA will allow further clarification to understand the

[32] DEIS, p. 39

[33] Department of Interior. "Report on the Federal Oil & Gas Leasing Program," Prepared in Response to Executive Order 14008, Department of Interior, US Government, Nov. 2021, available at: https://www.doi.gov/sites/doi.gov/files/report-on-the-federal-oil-and-gas-leasing-program-doi-eo-14008.pdf

[34] DEIS, p. 109

important and nuanced impacts of the proposed LS 258 to local and regional disadvantaged communities. EPA finds that in addition to subsistence food consumption, consideration of changes in the quantity, quality, and/or perceived quality of subsistence foods, and potential and or perceived contamination of subsistence resources should be considered.

EPA recommends incorporating (in an HIA or in the EIS) the following studies that document Cook Inlet and Kodiak tribal seafood consumption rates, and estimate tribal fish consumption rates for many villages from state harvest data:

- An Assessment of Cook Inlet Tribes' Seafood Consumption (Opheim, M, Merrel, T, 2013);
- An Assessment of Kodiak Island Tribes' Seafood Consumption (Lance et al., draft final, 2019),
- Alaska Statewide and Regional Estimates of Consumption Rates in Rural Communities for Salmon, Halibut, Herring, Non-Marine fish, and Marine Invertebrates (Polissar, N, Neradilek, M, 2019).

Presidential Fact Sheet

EPA notes that on November 15, 2021, the White House issued a statement titled "Fact Sheet: Building a New Era of Nation-to-Nation Engagement.[35] As part of combatting climate change and protecting Tribal lands, President Biden "has set a goal of conserving 30 percent of America's lands and waters by 2030 and is working in collaboration with Tribal Nations to focus on the most ecologically important lands and waters." The DEIS states that the "Seldovia Village Tribe provided written comments that expressed concerns for Cook Inlet beluga whale and northern sea otter populations and identified areas in state and OCS waters that are important for commercial, recreational, and subsistence fishing" (DEIS p. 129). The Proposed Action includes project activities in critical habitat for the beluga whale and northern sea otter. We encourage consideration of this fact sheet in the EIS analysis, particularly whether critical habitat areas in the program area should be protected to support the goals of the sheet.

Outreach

EPA recommends the FEIS incorporate additional details about all coordination and consultation efforts that have occurred in the NEPA process, as well as available information about future planned consultation or outreach efforts. Include information on how the consultation effort shaped the EIS.

Communities and Corporations

EPA advises the following clarifications:

- the Cook Inlet Tribal Council is not a federally recognized tribe.
- the ANCSA Regional Association is not an Alaska Native Corporation.
- the Native Village of Eklutna is a federally recognized Cook Inlet tribe, and Knikatnu is a Cook Inlet Native Corporation. Both appear to be accidentally excluded from consideration.
- The Kodiak and Iliamna area tribes were identified as potentially impacted by a large spill. Clarify if they were or will be consulted and how.

Subsistence Economics

EPA finds that the use of the replacement cost method (RCM) to quantify the monetary cost of replacing subsistence foods that may be lost because of lease activities will be helpful to understanding of the potential impacts from LS 258. RCM is a standard technique for evaluating the dollar value of an ecosystem service (Brown & Burch, 1992; Hougner, Colding, & Soderqvist, 2006). Subsistence harvest patterns could be disrupted by harvesters' self-imposed restrictions on resources considered to be tainted, or because of space-use conflicts, or due to the temporarily avoidance of subsistence use areas due to noise impacts, as recognized in the DEIS. When subsistence foods are not available, nutritionally comparable substitutes must be purchased, placing a direct

[35] https://www.whitehouse.gov/briefing-room/statements-releases/2021/11/15/fact-sheet-building-a-new-era-of-nation-to-nation-engagement/

financial burden on subsistence users in the form of lost harvest, as well as an indirect burden from stranded assets that users purchase for harvest activities (e.g., nets, fishwheels, snow machines).

Estimates have been calculated for the replacement value of subsistence foods in general (Guettabi et al. 2016; Alaska Dept. of Fish and Game, Division of Subsistence, 2014), and these estimates can be applied to total subsistence harvests for affected communities listed in Section 5.1. Consideration should also be given to the most similar commercially available product that would replace subsistence products that represent a significant portion of a community's total harvest, such as salmon and other fish, big game, small game and furbearers, marine mammals, birds and eggs, marine invertebrates, and plants and berries.

> ***Recommendation***
> Given the high nutritional and cultural value of subsistence food within Alaska, EPA recommends analyzing the potential impacts of the proposed LS 258 to the regional subsistence economies. We also recommend the FEIS consider the unique cumulative impacts caused by remote geography (off the road system), regional food equity and importance of subsistence way-of-life practices experienced by communities in along the Cook Inlet. EPA finds it important that the FEIS analyzes the impacts that LS 258 may have to the ability of these communities to maintain their existing subsistence economies.

Current prohibitions on the subsistence harvest of Cook Inlet beluga whales provide an example of a significant loss of a valuable cultural, nutritional, and economic resource for Alaska Natives. The designation of the Cook Inlet beluga stock as "depleted" under the MMPA has led to NMFS regulations that have prevented subsistence harvest of belugas since 2008 under the long-term harvest plan, which requires a minimum average abundance of 350 whales before harvest can be considered. NMFS estimated a lost food resource of over 26,000 lbs per year (based on the 1995-1998 harvest period) due to the inability to harvest belugas (Cook Inlet Beluga Whale Harvest FSEIS, 4-28).

> ***Recommendation***
> EPA recommends that the FEIS use the RCM to determine the financial losses to the community based on NMFS's estimates. NMFS also determined that "a long-lasting prohibition on the subsistence harvest of Cook Inlet beluga whales would adversely affect the families that rely on beluga whales for nutritional and economic purposes." EPA recommends that the FEIS assess any potential impacts from the proposed project to the recovery rate of the Cook Inlet beluga population, as the rate of recovery determines the ability of the Native Alaska communities to benefit from these resources.

Oil Spills

Environmental Justice

EPA notes that in Section 4.15.1, the DEIS stated that "[a]nalysis of the post-lease activities described in the E&D Scenario found no major (i.e., high and adverse) impacts for E&D activities or small spills for subsistence activities and harvest patterns, air quality, water quality, or the biological resources harvested for subsistence." The DEIS supports this analysis by stating that potential incidents could be mitigated by responsive and thorough oil spill response activities.

EPA disagrees with the DEIS's determination that oil spill response activities would reduce the effects of a large spill to a negligible to minor level of effects.[36] EPA recommends that this topic be carefully considered in the decision-making process and that comments received from local Alaska Native tribes and tribal organizations on this comment are given due weight.

The LS 258 DEIS describes a 19% likelihood of a large oil spill (≥ 1,000 barrels) occurring over the 32-year E&D scenario timeline. For analytical purposes, the DEIS considered in the scenario that the crude oil spill not responded to by clean-up teams. The DEIS assumes for the analysis that after 30 days in open water or broken ice, the spilled crude oil will weather as follows: 17%–20% evaporates, 19%–80% disperses, and 3%–61% remains.

[36] DEIS page 102

Assuming 3,800 barrels of crude, about 2,318 barrels were determined to remain in water during the worst-case scenario. For comparison, BOEM issued a Record of Decision that was analyzed to have a 0.68% percent chance of one or more large spills occurring over the life of the proposed project with a similar timeline; and included a seasonal drilling restriction on the project to assist in oil spill response practices. EPA recognizes that imposition of a mitigation measure such as the seasonal drilling restriction is not practical due to the lack of land-fast ice that would tolerate the use of land vehicles for spill response in Cook Inlet.

EPA recognizes that the effectiveness of cleanup operations is highly dependent on volume, location, and time of year in Alaska. In the Arctic or onshore, a small spill occurring during winter on solid ice and snow can be readily cleaned up using conventional land-based equipment such as shovels, snow blowers, and bulldozers, resulting in a near 100% recovery rate. Spills to open-water and broken-ice conditions, like are often present in Cook Inlet, result in lower recovery rates of 5-20% of the spilled oil. Removal of a spill on water requires the deployment of containment boom to corral and concentrate the oil into a recoverable thickness, skimmers to remove the oil from the water surface, temporary storage vessels to hold the recovered oil and water, and vessels to deploy the equipment and personnel. Recovery rates are lower on water because the oil can disperse rapidly throughout the area, and responders must first locate and contain the spill before it can be recovered.[37]

Spill containment has proven to be particularly difficult in Cook Inlet. In 2017, a spill response to a natural gas pipeline rupture was delayed by several months because access to the site of the leak was impeded by ice in the inlet.[38] This indicates that the worst-case discharge scenario may be more likely than estimated by BOEM due to lack of spill response effectiveness due to existing environmental conditions as experienced in 2017.

Recommendation

EPA recommends the FEIS include a mitigation measure that would provide more robust protection given EPA's concerns regarding the likelihood of a large oil spill and the resulting impacts to Alaska Native tribes, communities that rely on subsistence resources, and the subsistence resources themselves. We encourage the development of a mitigation measure or leasing stipulation that would assist in spill response capabilities and practices like BOEM has implemented in the past (e.g., a seasonal drilling restriction). EPA recognizes that due to the environmental conditions, a seasonal drilling restriction as the method of protection available in the Beaufort Sea is not able to be utilized in the Cook Inlet. We encourage BOEM to determine a comparable protection method that is pragmatic and actionable to be used as a mitigation measure or lease stipulation.

According to DOI's recent report on the Federal Oil and Gas Leasing Program, BOEM plans to develop a "Fitness to Operate Standard" that will establish criteria companies would need to meet to operate on the US OCS. This will require companies to meet minimal fitness to operate standards to ensure companies can meet their safety, environmental, and financial responsibilities.[39] Considering the low efficacy of spill containment and recovery in the open water and broken ice conditions in Cook Inlet, these standards may help BOEM require and implement additional lease stipulations and/or measures targeted to the prevention and remediation of oil spills. EPA recommends the FEIS include a discussion of how "Fitness to Operate" standards are developed and adopted throughout BOEM's leasing program, including but not limited to LS 258.

In addition, EPA recommends that the FEIS include information about financial assurance requirements to mitigate potential adverse impacts resulting from a worst-case release or spill to subsistence resources and the communities that rely on these resources in addition to adverse impacts to the environment.

[37] Bureau of Ocean Energy Management (as MMS). Chukchi Sea Lease Sale 193 Environmental Impact Statement. 2007.
[38] Pipeline and Hazardous Materials Safety Agency. *Hilcorp Gas Leak - Cook Inlet, Alaska*. https://www.phmsa.dot.gov/news/hilcorp-gas-leak-cook-inlet-alaska. Accessed 2021.
[39] Department of Interior, Report on the Federal Oil & Gas Leasing Program, *supra* note 33.

Habitats

The DEIS states, "[t]he impacts of a large spill could be widespread, long-lasting, and would require spill response and cleanup, which itself can affect organisms through use of dispersants and mechanical recovery methods (Section A-3.4, Appendix A). For the reasons discussed previously, EPA disagrees with the discussion in Section 4.6.2.4 on potential oil spill impacts, that "[t]hese long-lasting effects occurring in discrete areas are not likely to affect the majority of the Proposed Lease Sale Area or cover the entirety of available habitat in Cook Inlet, thus limiting the severity of effects. Recovery would be expected in the affected area, possibly after many years, while unoiled areas would not be impacted."

Recommendation

EPA recommends that the FEIS clarify the potential impacts of a large oil spill. In Section 4.6.2.4, the first sentence specifies that impacts of a large spill could be widespread, while the second claims that effects would be only be in discrete areas unlikely to affect the majority of the Proposed Lease Sale Area. These sentences are conflicting. Further, recent findings show that even extremely low levels of crude oil can lead embryonic salmon and herring to develop hidden heart defects that compromise their survival, spawning, and ultimately success of the stock.[40] Accordingly, impacts could be widespread across the fish stocks in Cook Inlet and linger well beyond the "recovery" of the habitat, potentially impacting the stability of other species in the ecological web of Cook Inlet. For example, the DEIS notes in Section 4.8.1 that Cook Inlet beluga whale reproductive success is tied to king salmon abundance in a regional river.

EPA recommends that the FEIS include discussion in Appendix A or in Section 4.8.2.4 regarding the potential prolonged exposure of marine mammals to spilled materials due to the delayed response and cleanup. As discussed, responding to an oil spill in broken ice environments is extremely difficult. There is no discussion of the impacts of this delay in this section or in Appendix A. EPA recommends that the FEIS include an assessment of the impact of a winter spill on marine mammals and their prey.

Economics

The DEIS explains the recent history of lease sales in this area. In recent years, there have been several occasions where lack of industry interest was signaled by lack of bids. This section also states that "[n]o production has occurred on the Cook Inlet OCS to date" (DEIS p. 19). The DEIS identifies that the loss or delay of economic benefits as a negative impact of selecting the No Action Alternative. EPA disagrees that the loss or delay of economic benefit being considered a negative impact given the potential of economic gain from Federal royalties being hypothetical to date.

EPA notes that the proposed project area is near the Tutka Bay Hatchery and Port Graham Hatchery. EPA recommends that the FEIS analyze potential economic impacts to the hatcheries.

Water Quality

Activities conducted because of LS 258, as described in the E&D Scenario, may result in the discharge of pollutants. Section 301(a) of the of the Clean Water Act provides that the discharge of pollutants to surface waters of the United States is prohibited except in accordance with a National Pollutant Discharge Elimination System (NPDES) permit. Section 402 of the CWA and the regulations at 40 CFR Parts 122, 124, and 125 establish the NPDES permit program, which provides the EPA and the authorized states the authority to control and limit the discharge of pollutants into waters of the United States. The Planning Area is in federal waters; therefore, EPA is the NPDES permitting authority. We also note that NPDES permits are required for discharges from geotechnical surveys.

EPA's NPDES general permit for discharges from oil and gas exploration includes prohibitions on all discharges to specific areas of Lower Cook Inlet. EPA notes that these areas are included in BOEM's proposed planning area. Specifically, discharges are prohibited to waters shoreward of the 10 meter mean lower low water isobath

[40] https://www.nature.com/articles/srep13499

and in Kamishak Bay (west of a line from Cape Douglas to Chinitna Point). EPA's general permit includes other geographic restrictions, but they are outside of the current proposed Planning Area.

Wastewater Discharges

DEIS Section 4.1.2 explains that produced water would be separated and reinjected into the reservoir using service wells. Effluent Limitation Guidelines (ELGs) for offshore oil and gas allow for produced water to be discharged, with technology based effluent limits for oil and grease. EPA recommends that the FEIS's E&D scenario indicate that discharge of produced water may occur and subsequently analyze the impacts or indicate that a stipulation of the lease will be prohibition of discharge of produced water.

DEIS Section 4.6.2.3 states that the "discharge of drilling fluids and cuttings is regulated and is not likely to cause persistent toxic effects in fish or invertebrate communities near the discharge." This statement relies on a future decision from Endangered Species Act (ESA) consultation and from EPA to permit the discharge of drilling fluids and cuttings, which has yet to occur. We recommend the FEIS analyze the potential impacts of discharges on fish and invertebrates, including from produced water discharge, so that the EIS is not relying on unknown future conditions.

DEIS Section 4.4.2.1 states that because drilling discharges are"[r]egulated by the EPA as a point-source discharge through the NPDES permitting program, drilling discharges must not cause unreasonable degradation of the marine environment (EPA, 2015b). BOEM expects that all discharges from lease activities associated with LS 258 would comply with permit limits set forth by the NPDES program." EPA recommends revising this sentence as follows: "As described above, under CWA Section 402 all discharges to surface waters are subject to NPDES permitting regulations. Any discharge found to cause an unreasonable degradation of the marine environment will not be permitted (40 CFR Part 125, Subpart M)."

Total Suspended Solids

Section 4.4.2.1 of the DEIS states that elevated TSS levels from temporary seafloor disturbance activities are highly unlikely to exceed ambient TSS levels that naturally occur from riverine and stream inputs draining into Cook Inlet (Saupe et al., 2005)." EPA recommends that the FEIS include quantitative data to illustrate this point and explain what the expected temporary increases from seafloor disturbance are and how these would compare to ambient TSS levels mentioned in DEIS Section 4.4.1. It will be helpful for the public to better understand the scale of TSS increases.

Section 4.4.2.1 of the DEIS also states that "[s]trong and fast tidal currents characteristic of Cook Inlet would rapidly disperse and resettle additional suspended sediment with natural, ambient water quality conditions expected after operations cease." Turbulence tends to maintain particles in suspension. Suspended sediment might be rapidly dispersed but not rapidly resettled. EPA recommends include this in the TSS discussions. Later, the DEIS (p. 60) states that "[t]he strong and fast tidal currents of Cook Inlet would rapidly disperse and resettle TSS resulting in short-term, localized impacts to estuarine and marine deep-water wetland habitat (Saupe et al., 2005). Please confirm the use of the phrase "marine deep-water wetland habitat" as deep-water habitat are generally fully submerged/flooded lands located in waters deeper than wetlands.

Water Intake

Section 4.6.2.3 of the DEIS states that "[w]ater intake structures may negatively affect zooplankton and larval fish throughout the life of the scenario, but these impacts would be limited to a discrete area around the intake structures." Section 316(b) of the CWA requires EPA to issue regulations on the design and operation of intake structures, to minimize adverse impacts. The cooling water intake requirements are included in the NPDES permit regulations at 40 CFR Parts 122 and 125. Specifically, 40 CFR Part 125 Subpart N is applicable to all oil and gas facilities that are subject to the offshore or coastal subcategories of the Oil and Gas Extraction Point Source Category (i.e., Subparts A and D), that commenced construction after July 17, 2006, and that meet the definition of a new facility at 40 CFR § 125.83 (Subpart N). EPA recommends that the FEIS incorporate this information for future permitting coverage.

Ocean Discharge Criteria

EPA notes for inclusion in the FEIS, that Section 403(c) of the CWA requires that NPDES permits authorizing discharges into the territorial seas, the contiguous zones, and the oceans, including the outer continental shelf, comply with EPA's Ocean Discharge Criteria (40 CFR Part 125, Subpart M). The purpose of the Ocean Discharge Criteria Evaluation (ODCE) is to assess the discharges authorized under the NPDES permit and to evaluate the potential for unreasonable degradation of the marine environment based on the consideration of ten specific criteria. The ten criteria are specified at 40 CFR Part 125.122, Determination of Unreasonable Degradation of the Marine Environment.

Discharges to surface waters of the United States associated with the oil and gas extraction point source category are regulated under 40 CFR Part 435, Subparts A-D, which were promulgated in 1979. Effluent limitation guidelines and new source performance standards for the offshore subcategory of the oil and gas extraction point source category were amended on January 15, 1993, and became effective on March 4, 1993 (40 CFR 435, Subpart A; 58 FR 12454). New oil and gas development and production operations where construction commenced after the effective date of applicable new source performance standards (NSPS) are considered new sources.

As described in the development document for the Final Effluent Limitation Guidelines and New Source Performance Standards for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category, the following waste streams are commonly associated with exploration, development, and production activities:

Major Waste Streams:

- Drilling Fluid (or drilling mud) – the circulating fluid (mud) used in the rotary drilling of wells to clean and condition the hole and to counterbalance formation pressure. A water-based drilling fluid is the conventional drilling mud in which water is the continuous phase and the suspending medium for solids, whether oil is present. An oil-based drilling fluid has diesel, mineral, or some other oil as its continuous phase with water as the dispersed phase. Under the Offshore ELGs, discharges of non-aqueous drilling fluids are prohibited.
- Drill Cuttings – the particulates generated by drilling into subsurface geologic formations and carried to the surface with the drilling fluid.
- Produced Water – the water (brine) brought up from the hydrocarbon-bearing strata during the extraction of oil and gas, and can include formation water, injection water, and any chemicals added downhole during the oil/water separation process.

Miscellaneous Waste Streams:

- Produced Sand – the slurried particles used in hydraulic fracturing, the accumulated formation sands and scale particles generated during production. Produced sand also includes desander discharge from the produced-water waste stream and blowdown of the water from the produced water treating system.
- Well Treatment Fluids – any fluid used to restore or improve productivity by chemically or physically altering hydrocarbon-bearing strata after a well has been drilled.
- Well Completion Fluids – salt solutions, weighted brines, polymers, and various additives used to prevent damage to the well bore during operations which prepare the drilled well for hydrocarbon production.
- Workover fluids – salt solutions, weighted brines, polymers, or other specialty additives used in a producing well to allow safe repair and maintenance or abandonment procedures.
- Deck Drainage – waste resulting from deck washing spillage, rainwater, and runoff from gutters and drains including drip pans and work areas.
- Domestic Waste – materials discharged from sinks, showers, laundries, safety showers, eyewash stations, and galleys.
- Sanitary Waste – human body waste discharged from toilets and urinals.
- Desalination unit discharge – wastewater associated with the process of creating freshwater from seawater.

- Blow out preventer fluid – fluid used to actuate the hydraulic equipment on the blowout preventer.
- Uncontaminated ballast/bilge water – seawater added or removed to maintain proper draft.
- Mud, cuttings, and cement at the seafloor that result from marine riser disconnect and well abandonment and plugging.
- Uncontaminated sea water including fire control and utility lift pumps excess water, excess sea water from pressure maintenance, water used in training and testing of fire protection personnel, pressure test water, and non-contact cooling water.
- Boiler blowdown – discharge from boilers necessary to minimize solids build-up in the boilers.
- Excess cement slurry that results from equipment washdown after a cementing operation.
- Waterflooding discharges – discharges associated with the treatment of seawater prior to its injection into a hydrocarbon-bearing formation to improve the flow of hydrocarbons from production wells. These discharges include strainer and filter backwash water and treated water more than that required for injection.

Cumulative Impact

Section 4.5.4 of the DEIS states that "[o]perational discharges, including vessel discharges, are regulated and require either a federal (NPDES) or a state (Alaska Pollutant Discharge Elimination System (APDES)) permit. Regulatory oversight coupled with the rapid dispersion and dilution of discharges in Cook Inlet would result in little to no cumulative impact." EPA recommends including a statement that reminds the public that while the Proposed Lease Sale is in Federal waters, there are wastewater discharges occuring to State waters adjacent to the Planning Area and Alaska Department of Environmental Conservation is the permitting authority. Further, EPA disagrees that there would be "no cumulative impact" because of the different discharges. Rather, we find it is more appropriate to say that cumulative impacts associated with wastewater discharges could occur, though they are anticipated to be minimal.